Amendment to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A procedure for starting up a vacuum fuel cell system (10), the system including at least one fuel cell (12) having a cathode (16) secured adjacent one side of an electrolyte layer (18), an anode (14) secured adjacent an opposed side of the electrolyte layer (18), wherein the cathode (16) includes a cathode catalyst supported on a carbon support (26), a cathode flow field (32) defined adjacent the cathode (16) and an anode flow field (38) defined adjacent the anode (14), a fuel inlet valve (70) and a fuel outlet valve (74) secured in fluid communication with the anode flow field (38) for permitting and prohibiting flow of the fuel through the anode flow field (32), wherein both the cathode and anode flow fields (32, 38) are filled with air and a primary electricity using device (78) is disconnected from the fuel cell (12) power circuit (76) during a shut down of the fuel cell (12), the procedure comprising the steps of:

a. closing the fuel inlet valve (70) and the fuel outlet valve (74) to prohibit flow of fuel through the anode flow field (32);

b. then, applying a vacuum to the anode flow field (38) <u>until the vacuum creates a pressure differential</u>

between the fuel at the fuel inlet valve (70) and the anode flow field (38) of between about 31.5 kPa and about 105.5 kPa;

c. then, while the pressure differential between the fuel at the fuel inlet valve (70) and the anode flow field (38) is between about 31.5 kPa and about 105.5 kPa, opening the fuel inlet valve (70) and the fuel outlet valve (74);

d. then, delivering a continuous flow of hydrogen fuel into the anode flow field (38);

e. then delivering a flow of oxidant into the cathode flow field (32); and,

f. then connecting the primary load to the fuel cell (12) power circuit (76).

Claim 2. (original): The procedure of claim 1, wherein the step of applying the vacuum to the anode flow field (38) includes applying a vacuum until an absolute pressure within the anode flow field (38) is between about 60 kPa to about 85 kPa.

Claim 3. (original): The procedure of claim 1, wherein the step of applying the vacuum further comprises applying a vacuum to the cathode flow field (32).

Claim 4. (original): The procedure of claim 3, wherein the step of applying the vacuum to the cathode flow field (32) includes applying a vacuum until an absolute pressure within the cathode flow field (32) is between about 5 kPa to about 15 kPa.

Claim 5. (original): The procedure of claim 1 wherein the step of applying the vacuum to the anode flow field (38) includes applying a vacuum until an absolute pressure within the anode flow field (38) is between about 5 kPa to about 15 kPa.

Claim 6. (original): The procedure of claim 1, wherein the vacuum fuel cell system (10) includes a porous water transport plate (44) secured in direct fluid communication with the anode flow field (38) for directing a liquid coolant to pass through the water transport plate (44) and through a coolant accumulator (54), wherein the step of applying a vacuum to the anode flow field (38) further comprises applying a vacuum to the coolant accumulator (54) so that the vacuum level applied to the anode flow field (38) is about the same as the vacuum level applied to the coolant accumulator (54).

Claim 7. (original): The procedure of claim 1, comprising the further steps of connecting an auxiliary load (82) to the fuel cell (12) power circuit (76) prior to the step of delivering the continuous flow of hydrogen fuel, and disconnecting the auxiliary load (82) from the fuel cell (12) power circuit (76) prior to the step of delivering a flow of oxidant into the cathode flow field (32).

Claim 8. (currently amended): A vacuum fuel system (10) for starting up a fuel cell (12), comprising:

a. at least one fuel cell (12) having a cathode (16) secured adjacent one side of an electrolyte layer

(18), an anode (14) secured adjacent an opposed side of the electrolyte layer (18), wherein the cathode (16) includes a cathode catalyst supported on a carbon support (26), a cathode flow field (32) defined adjacent the cathode (16) for directing an oxygen containing oxidant to flow adjacent the cathode (16) and an anode flow field (38) defined adjacent the anode (14) for directing a hydrogen containing reducing fluid to flow adjacent the anode (14);

b. an oxidant inlet valve (59) and an oxidant exhaust valve (64) secured in fluid communication with the cathode flow field (32) for permitting and prohibiting flow of the oxidant through the cathode flow field (32), a fuel inlet valve (70) and a fuel outlet valve (74) secured in fluid communication with the anode flow field (38) for permitting and prohibiting flow of the fuel through the anode flow field (32); and,

c. a vacuum source means (90) secured in fluid communication with the anode flow field (38) for selectively applying a vacuum to the anode flow field (38) until the vacuum creates a pressure differential between the fuel at the inlet valve (70) and the anode flow field (38) of between about 31.5 kPa and about 105.5 kPa just prior to flow of the fuel into the anode flow field (38), the vacuum source means applying the vacuum when the fuel inlet valve (70) and fuel exhaust valve (74) are closed to prohibit flow of the fuel through the anode flow field (38).

Claim 9. (original): The vacuum fuel cell system (10) of claim 8, wherein the vacuum source means is also secured in fluid communication with the cathode flow field (32) for selectively applying a vacuum when the oxidant inlet valve (59) and oxidant exhaust valve (64) are closed to prohibit flow of the oxidant through the cathode flow field (32).

Claim 10. (original): The vacuum fuel cell system (10) of claim 8, further comprising a porous water transport plate (44) secured in direct fluid communication with the anode flow field (38) for directing a liquid coolant to pass through the water transport plate (44) and through a coolant accumulator (54), and wherein the vacuum source means (90) is secured in fluid communication with the coolant accumulator (54) for selectively applying a vacuum to the coolant accumulator (54) so that the vacuum applied to the anode flow field (38) is about the same as the vacuum applied to the coolant accumulator (54).

Claim 11. (original): The vacuum fuel cell system (10) of claim 8, further comprising an auxiliary load (82) secured in electrical communication with a fuel cell (12) power circuit (76) for selectively controlling fuel cell voltage.